FIG. 1

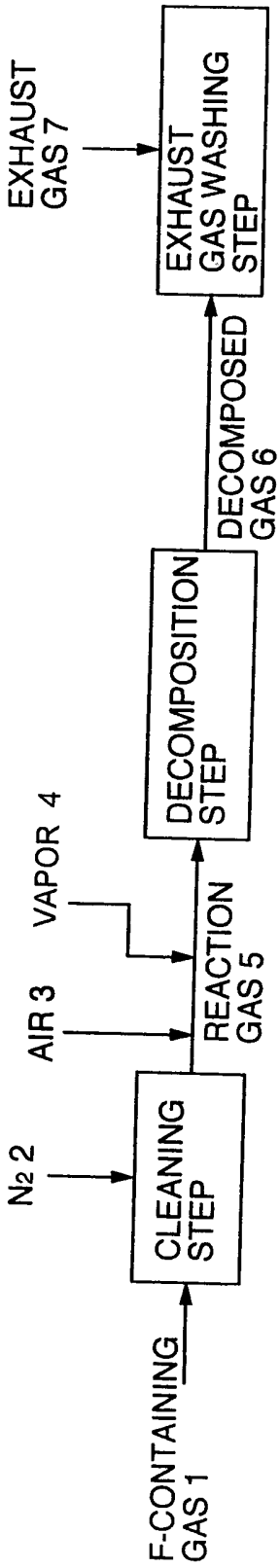

F-CONTAINING GAS 1
CLEANING STEP
N2 2
AIR 3
VAPOR 4
REACTION GAS 5
DECOMPOSITION STEP
DECOMPOSED GAS 6
EXHAUST GAS WASHING STEP
EXHAUST GAS 7

FIG. 2

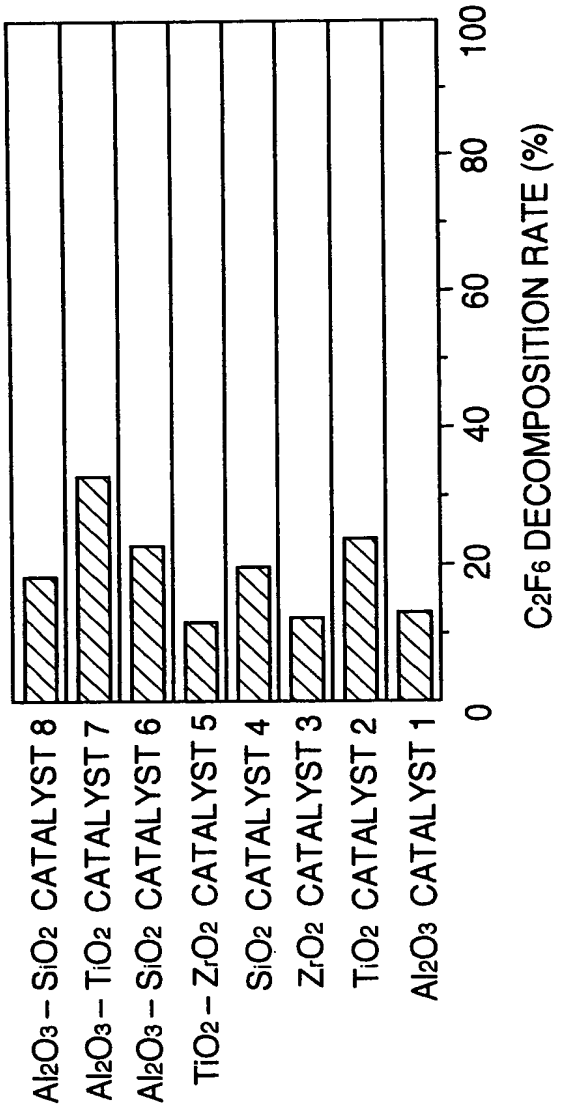

Al2O3 – SiO2 CATALYST 8
Al2O3 – TiO2 CATALYST 7
Al2O3 – SiO2 CATALYST 6
TiO2 – ZrO2 CATALYST 5
SiO2 CATALYST 4
ZrO2 CATALYST 3
TiO2 CATALYST 2
Al2O3 CATALYST 1
0
20
40
60
80
100
C2F6 DECOMPOSITION RATE (%)

FIG. 3

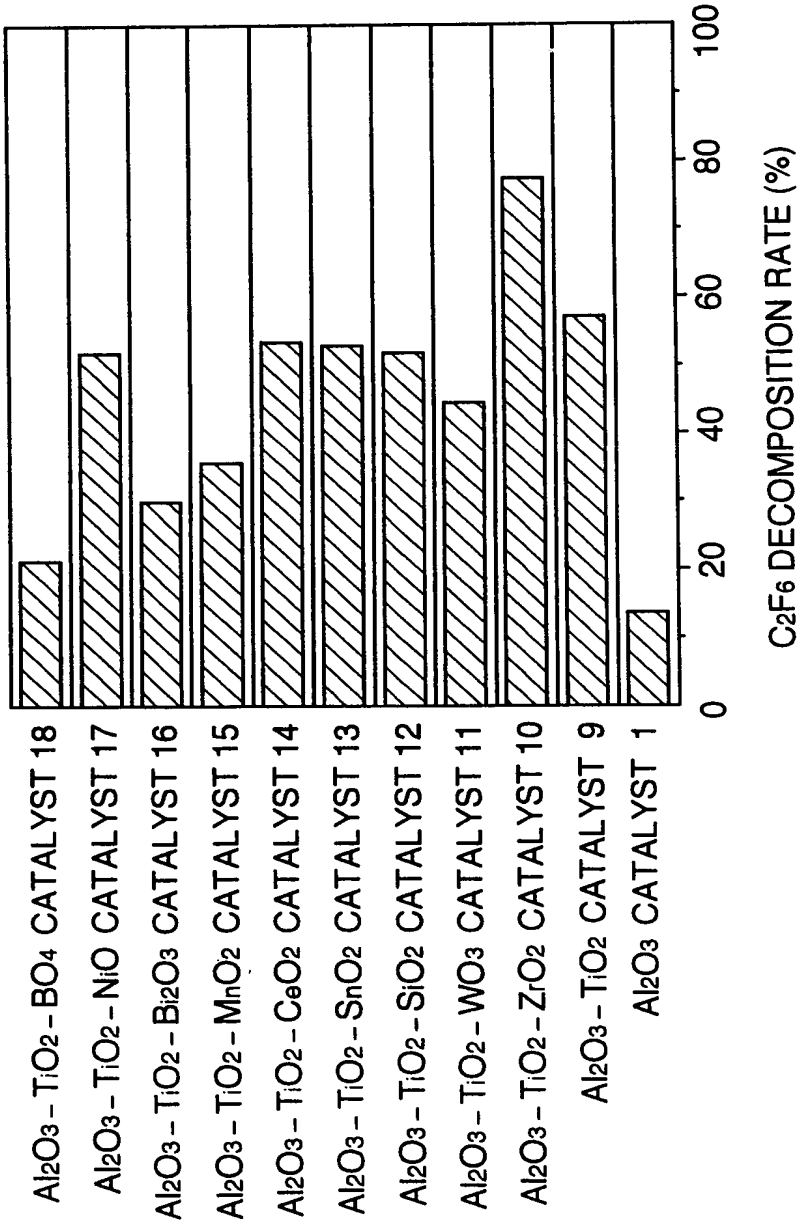

Al2O3 - TiO2 - BO4 CATALYST 18
Al2O3 - TiO2 - NiO CATALYST 17
Al2O3 - TiO2 - Bi2O3 CATALYST 16
Al2O3 - TiO2 - MnO2 CATALYST 15
Al2O3 - TiO2 - CeO2 CATALYST 14
Al2O3 - TiO2 - SnO2 CATALYST 13
Al2O3 - TiO2 - SiO2 CATALYST 12
Al2O3 - TiO2 - WO3 CATALYST 11
Al2O3 - TiO2 - ZrO2 CATALYST 10
Al2O3 - TiO2 CATALYST 9
Al2O3 CATALYST 1
0
20
40
60
80
100
C2F6 DECOMPOSITION RATE (%)

FIG. 4

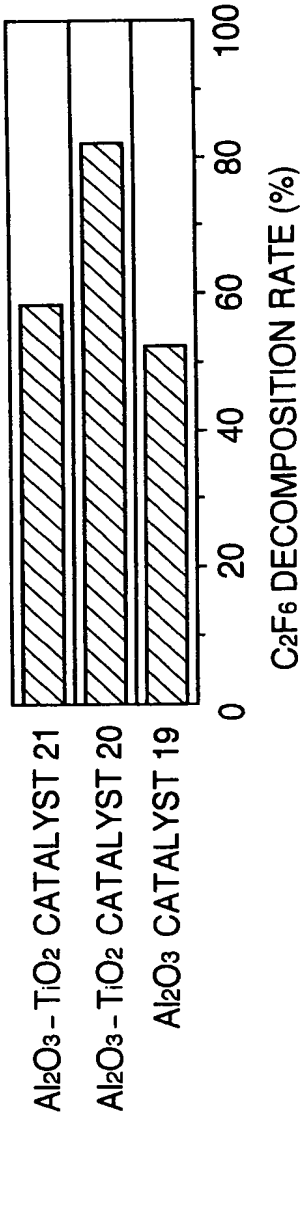

Al2O3 - TiO2 CATALYST 21
Al2O3 - TiO2 CATALYST 20
Al2O3 CATALYST 19
0
20
40
60
80
100
C2F6 DECOMPOSITION RATE (%)

FIG. 5

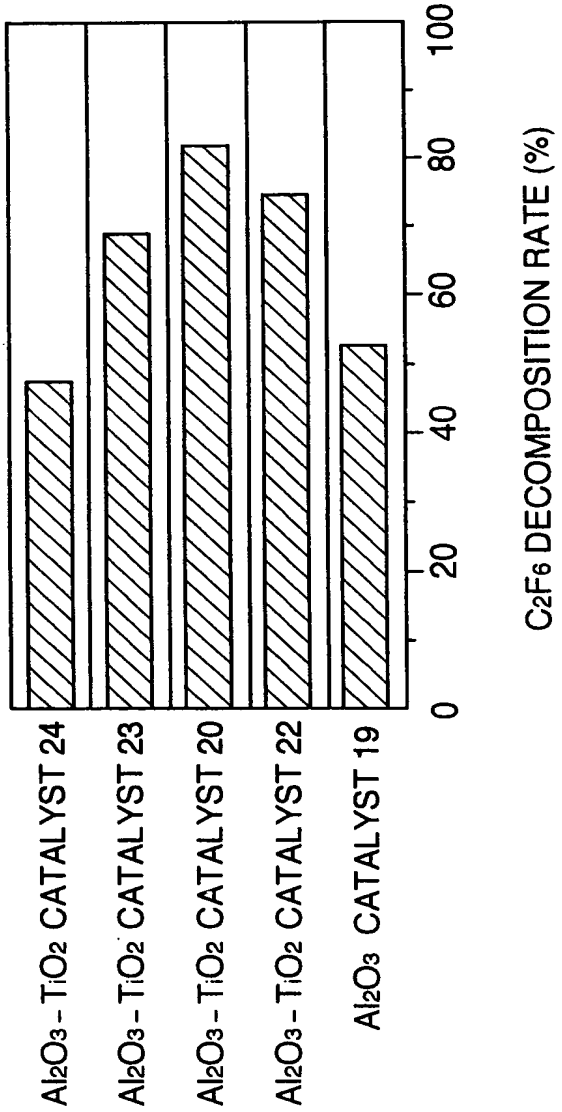

Al2O3 - TiO2 CATALYST 24
Al2O3 - TiO2 CATALYST 23
Al2O3 - TiO2 CATALYST 20
Al2O3 - TiO2 CATALYST 22
Al2O3 CATALYST 19
0
20
40
60
80
100
C2F6 DECOMPOSITION RATE (%)

FIG. 6

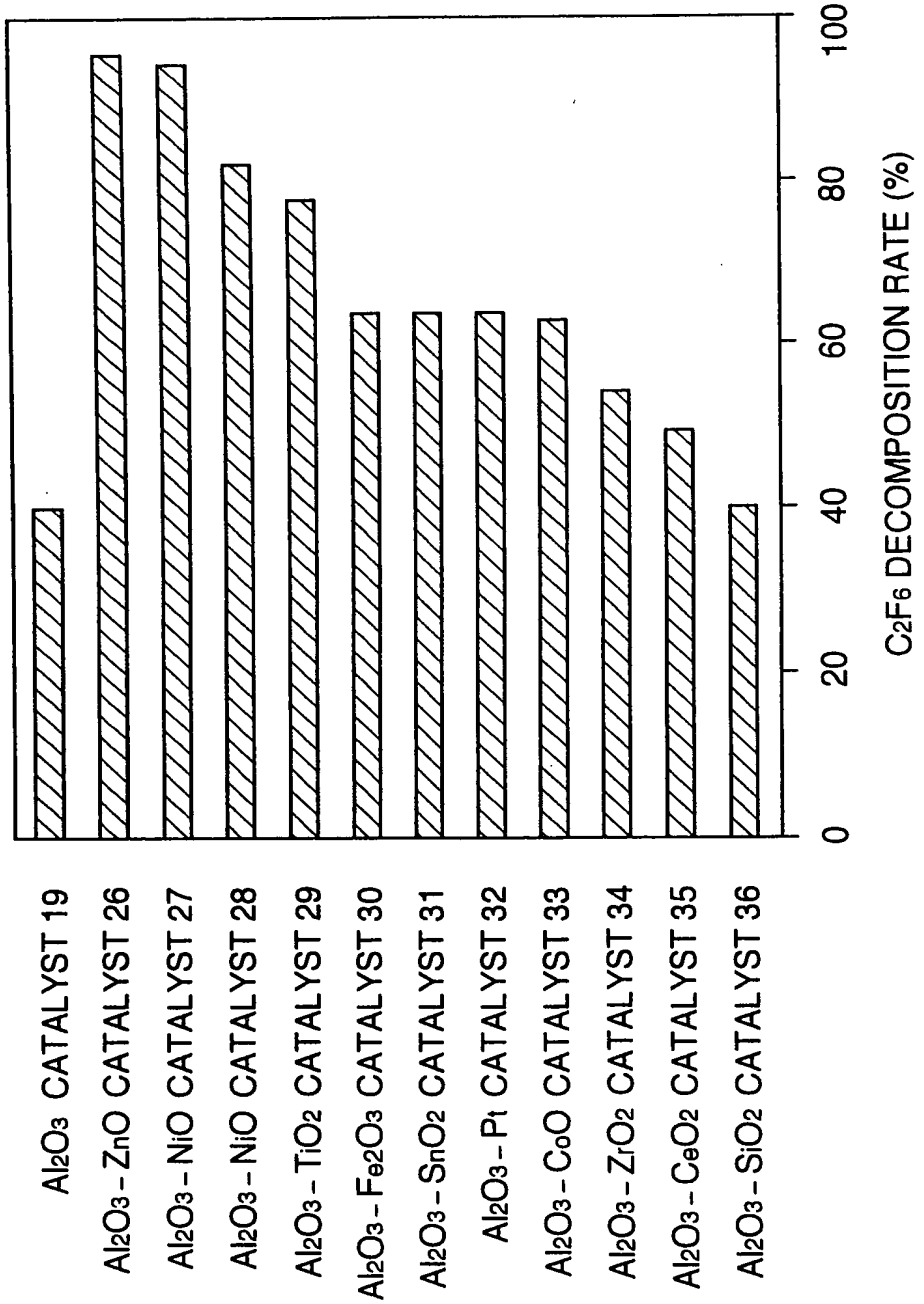

Al2O3 CATALYST 19
Al2O3 - ZnO CATALYST 26
Al2O3 - NiO CATALYST 27
Al2O3 - NiO CATALYST 28
Al2O3 - TiO2 CATALYST 29
Al2O3 - Fe2O3 CATALYST 30
Al2O3 - SnO2 CATALYST 31
Al2O3 - Pt CATALYST 32
Al2O3 - CoO CATALYST 33
Al2O3 - ZrO2 CATALYST 34
Al2O3 - CeO2 CATALYST 35
Al2O3 - SiO2 CATALYST 36
0
20
40
60
80
100
C2F6 DECOMPOSITION RATE (%)

FIG. 7

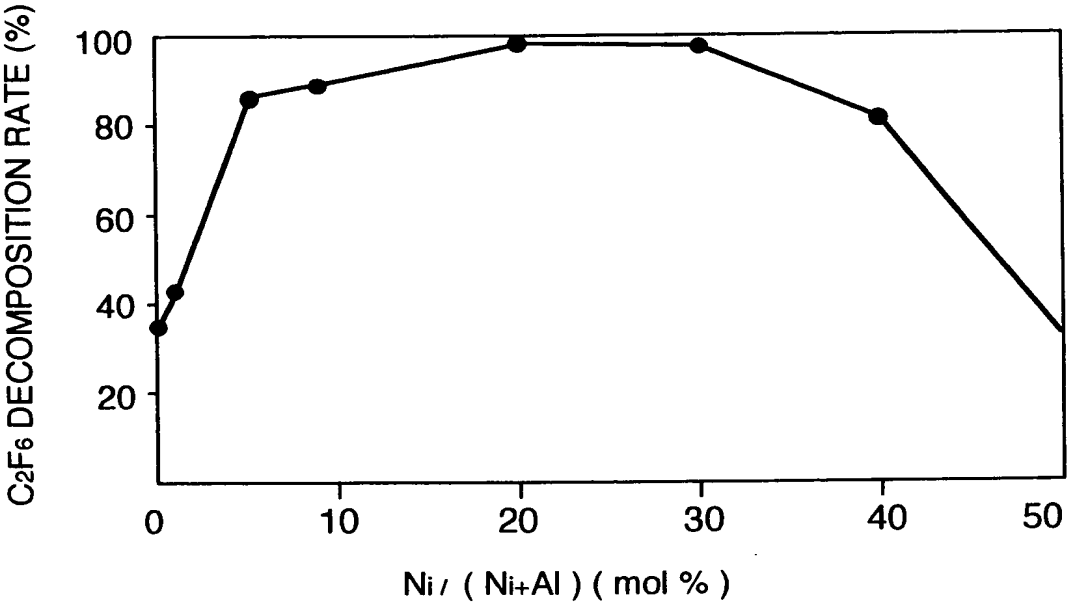

C_2F_6 DECOMPOSITION RATE (%)
100
80
60
40
20
0
10
20
30
40
50
Ni / (Ni+Al) (mol %)

FIG. 8

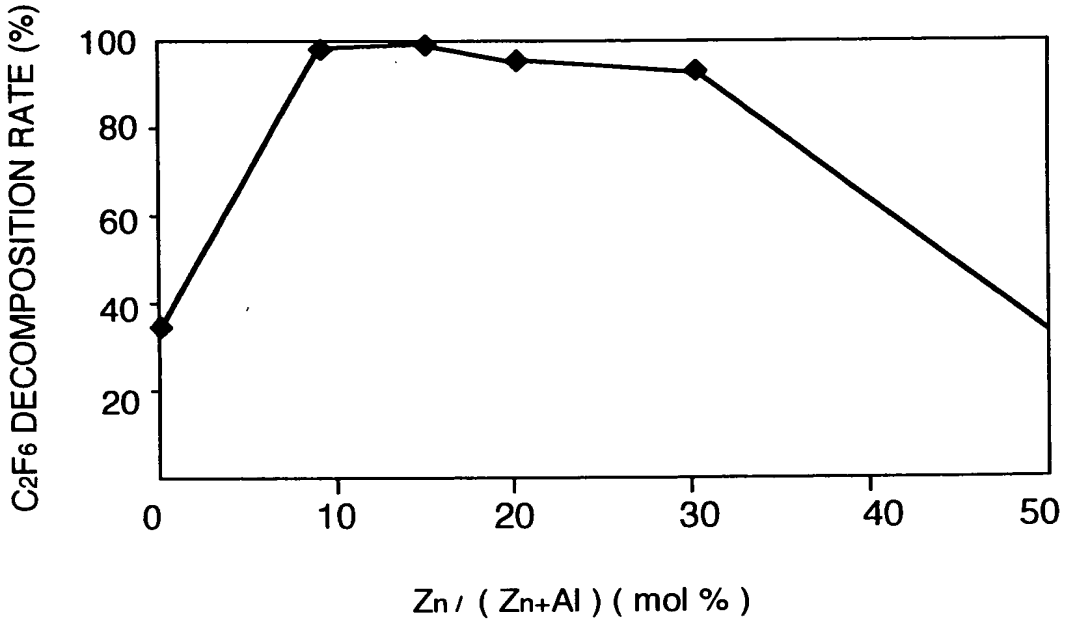

C_2F_6 DECOMPOSITION RATE (%)
100
80
60
40
20
0
10
20
30
40
50
Zn / (Zn+Al) (mol %)

FIG. 9

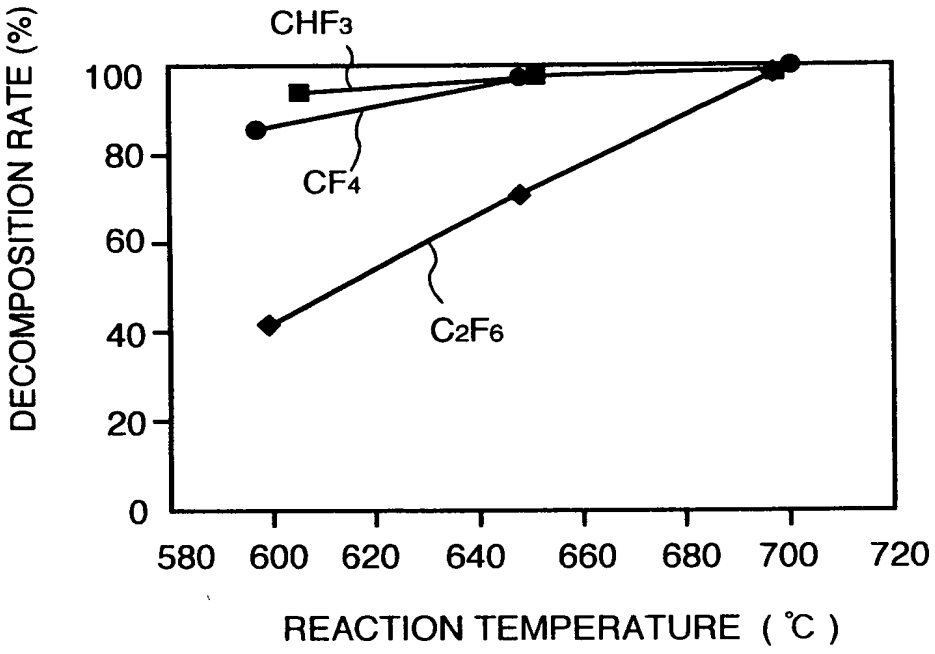

CHF3
CF4
C2F6
DECOMPOSITION RATE (%)
100
80
60
40
20
0
580
600
620
640
660
680
700
720
REACTION TEMPERATURE (℃)

FIG. 10

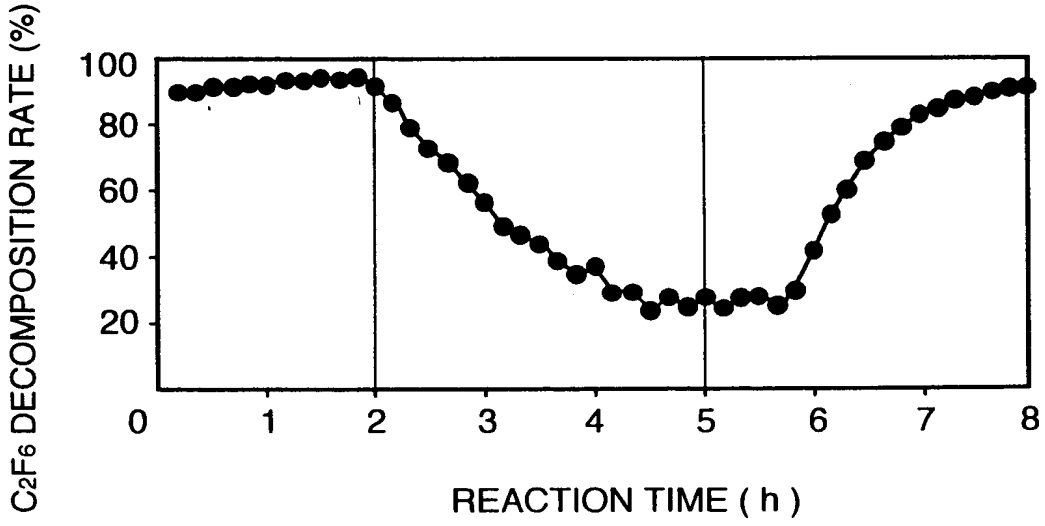

C2F6 DECOMPOSITION RATE (%)
100
80
60
40
20
0
1
2
3
4
5
6
7
8
REACTION TIME (h)

FIG. 11

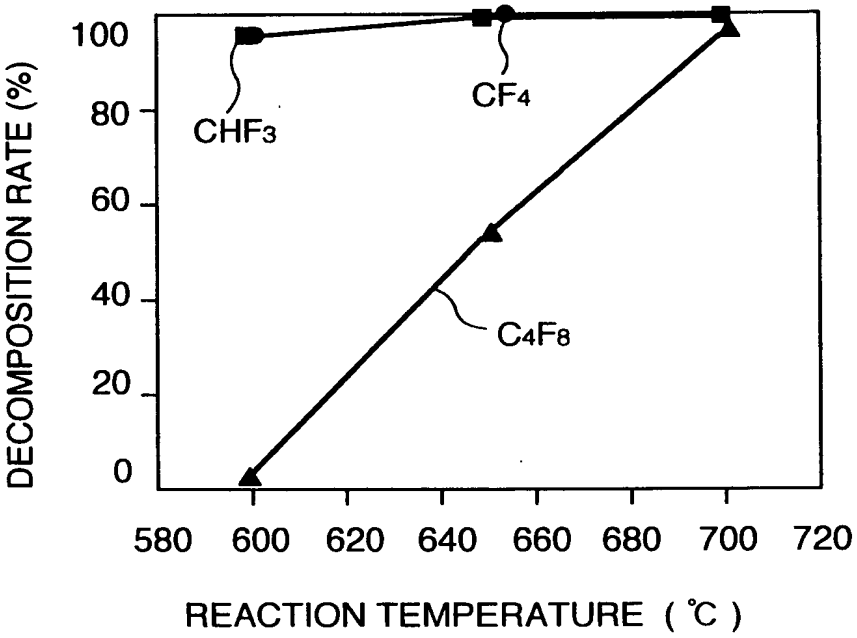

DECOMPOSITION RATE (%)
100
80
60
40
20
0
CHF3
CF4
C4F8
580
600
620
640
660
680
700
720
REACTION TEMPERATURE (℃)

FIG. 12

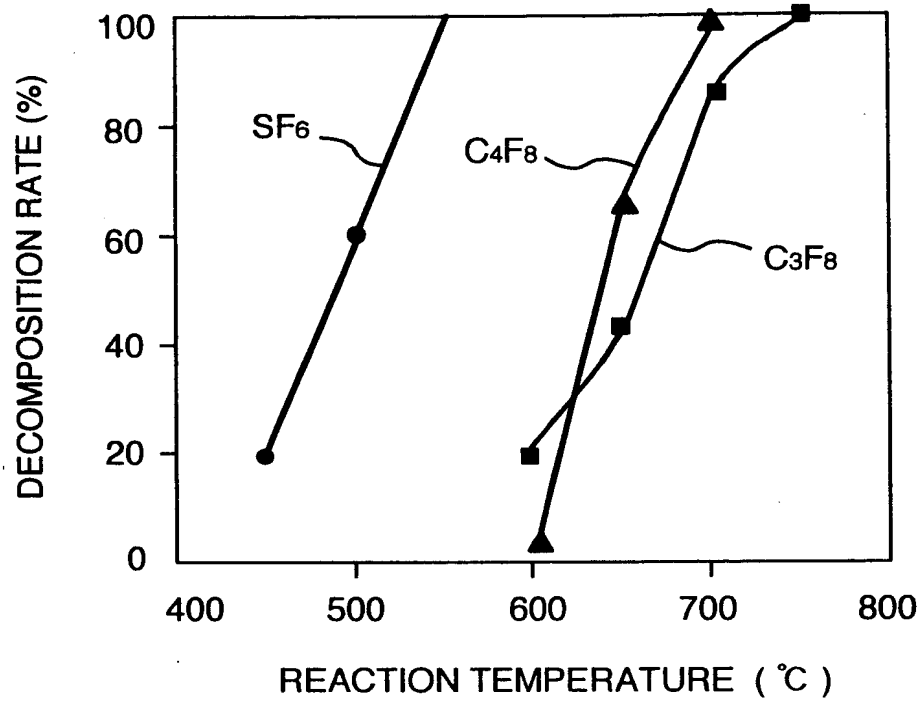
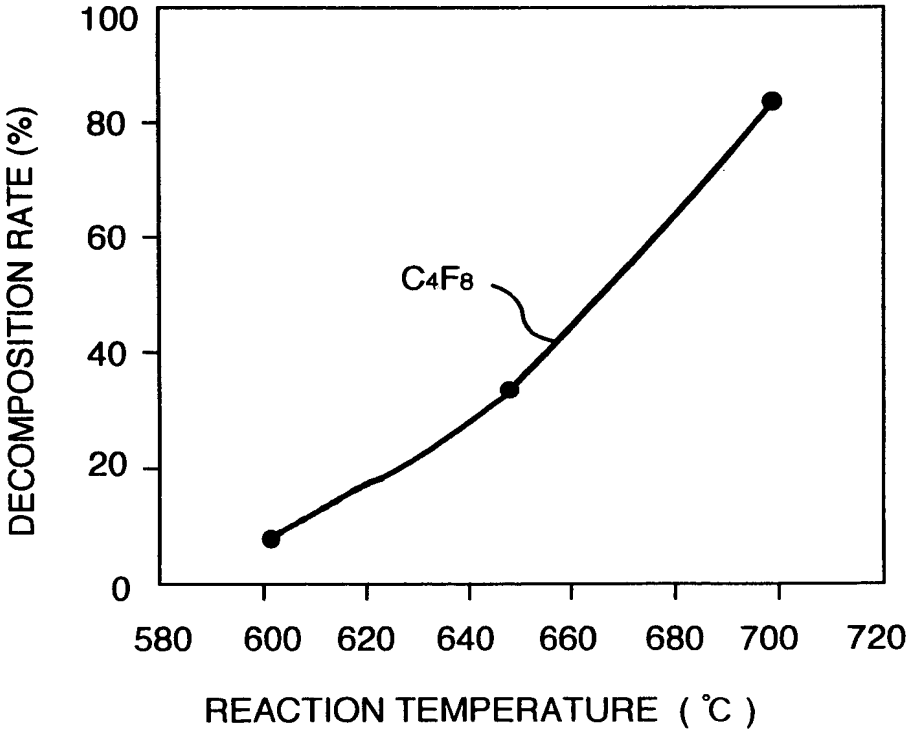

100
80
60
40
20
0
DECOMPOSITION RATE (%)
SF6
C4F8
C3F8
400
500
600
700
800
REACTION TEMPERATURE (℃)

FIG. 13


100
80
60
40
20
0
DECOMPOSITION RATE (%)
C4F8
580
600
620
640
660
680
700
720
REACTION TEMPERATURE (℃)